Claims

1. A nutritional composition suitable for facilitating bone healing in a mammal, comprising lysine, proline, ascorbic acid, copper, and vitamin B_6.

2. The nutritional composition of claim 1, wherein the nutritional composition contains 27-34 % wt lysine, 14-15 % wt proline, and 42-47 % wt ascorbic acid.

3. The nutritional composition of claim 1, wherein the nutritional composition provides a daily dosage of
   a) 230 mg – 10 grams lysine, 120 mg - 5 grams proline, 360 mg – 15 grams ascorbic acid, 1.5 µg – 20 mg copper, and 0.2 mg - 20 mg vitamin B_6;
   b) 1,010 mg – 8 grams lysine, 560 mg - 4 grams proline, 1,500 mg – 9 grams ascorbic acid, 2 µg – 6 mg copper, and 0.5 mg – 10 mg vitamin B_6; or
   c) 1,010 mg lysine, 560 mg proline, 1,500 mg ascorbic acid, 330 µg copper and 10 mg vitamin B_6.

4. The nutritional composition of claim 1, wherein said composition provides a daily dosage per body weight of
   a) 3.2 – 139 mg/kg lysine, 1.7 – 69.4 mg/kg proline, 5 – 208.3 mg/kg ascorbic acid, 0.02 – 278 µg/kg copper, 2.78 – 279 µg/kg vitamin B_6;
   b) 14 – 111 mg/kg lysine, 7.8 – 55.6 mg/kg proline, 20.8 - 125 mg/kg ascorbic acid, 0.03 – 83.3 µg/kg copper, and 6.94 – 139 µg/kg vitamin B_6; or
   c) 14 mg/kg lysine, 7.8 mg/kg proline, 20.8 mg/kg ascorbic acid, 4.6 µg/kg copper, 139 µg/kg vitamin B_6.

5. The nutritional composition of any one of claims 1 to 4, wherein the nutritional composition further comprises vitamin A, vitamin D_3, vitamin E, vitamin B_1, vitamin B_2, niacin, folic acid, vitamin B_{12}, biotin, pantothenic acid, calcium, phosphorus, magnesium, zinc, selenium, manganese, chromium, molybdenum, potassium, citrus fruit peel bioflavanoids, arginine, cysteine, inositol, carnitine, coenzyme Q_{10}, and pycnogenol.

6. The nutritional composition of claim 5, wherein the nutritional composition provides a daily dosage of

a) 67 µg -100 mg vitamin A, 0.7 µg - 50 µg vitamin D_3, 0.7 µg - 50 µg vitamin E, 1.4 mg – 8 mg vitamin B_1, 1.4 mg – 8 mg vitamin B_2, 9 mg – 250 mg niacin, 18 µg – 500 µg folic acid, 4 µg – 100 µg vitamin B_{12}, 13 µg - 400 µg biotin, 8 mg – 100 mg pantothenic acid, 7 mg – 40 mg calcium, 3 mg – 300 mg phosphorus, 40 mg – 200 mg magnesium, 0.5 mg – 10 mg zinc, 20 µg - 300 µg selenium, 0.8 mg – 15 mg manganese, 2 µg - 200 µg chromium, 0.8 µg - 100 µg molybdenum, 4 mg – 300 mg potassium, 20 mg – 500 mg citrus fruit peel bioflavanoids, 10 mg – 500 mg arginine, 10 mg – 400 mg cysteine, 5 mg – 400 mg inositol, 5 mg – 400 mg carnitine, 1.6 mg – 70 mg coenzyme Q_{10}, and 1.6 mg – 70 mg pycnogenol;

b) 166 µg -50 mg vitamin A, 1.65 µg - 20 µg vitamin D_3, 1.65 µg - 20 µg vitamin E, 3.5 mg – 7 mg vitamin B_1, 3.5 mg – 7 mg vitamin B_2, 22.5 mg – 100 mg niacin, 45 µg – 300 µg folic acid, 10 µg – 50 µg vitamin B_{12}, 32 µg - 300 µg biotin, 20 mg – 60 mg pantothenic acid, 17 mg – 35 mg calcium, 7 mg – 100 mg phosphorus, 50 mg – 100 mg magnesium, 3 mg – 8 mg zinc, 30 µg - 250 µg selenium, 1 mg – 3.25 mg manganese, 2 µg - 75 µg chromium, 2 µg - 75 µg molybdenum, 8 mg – 200 mg potassium, 50 mg – 250 mg citrus fruit peel bioflavanoids, 100 mg – 300 mg arginine, 80 mg – 200 mg cysteine, 80 mg – 200 mg inositol, 80 mg – 200 mg carnitine, 3 mg – 35 mg coenzyme Q_{10}, and 3 mg – 35 mg pycnogenol; or

c) 333 µg vitamin A, 3.3 µg vitamin D_3, 3.3 µg vitamin E, 7 mg vitamin B_1, 7 mg vitamin B_2, 45 mg niacin, 90 µg folic acid, 20 µg vitamin B_{12}, 65 µg biotin, 40 mg pantothenic acid, 35 mg calcium, 15 mg phosphorus, 40 mg magnesium, 7 mg zinc, 20 µg selenium, 1.3 mg manganese, 10 µg chromium, 4 µg molybdenum, 20 mg potassium, 100 mg citrus fruit peel bioflavanoids, 40 mg arginine, 35 mg cysteine, 35 mg inositol, 35 mg carnitine, 7 mg coenzyme Q_{10}, and 7 mg pycnogenol.

7. The nutritional composition of claim 5, wherein said composition further comprises in a daily dosage per body weight of

a) 0.9-1,390 µg/kg vitamin A, 0.01-0.694 µg/kg vitamin D_3, 0.01-0.694 µg/kg vitamin E, 19.4-111 µg/kg vitamin B_1, 19.4-111 µg/kg vitamin B_2, 125-3,472 µg/kg niacin, 0.25-6.94 µg/kg folic acid, 0.05-1.39 µg/kg vitamin B_{12}, 0.181-5.56 µg/kg biotin, 111-1,390 µg/kg pantothenic acid, 97.2-555 µg/kg calcium, 42-4,167 µg/kg phosphorus, 555-2,778 µg/kg magnesium, 6.9-139 µg/kg zinc, 0.28-4.17 µg/kg selenium, 11.1-208.3 µg/kg manganese, 0.03-2.78 µg/kg chromium, 0.01-1.39

µg/kg molybdenum, 55.6-4,167 µg/kg potassium, 278-6.944 µg/kg citrus fruit peel bioflavanoids, 139-6,944 µg/kg arginine, 135-5,555 µg/kg cysteine, 69-5,555 µg/kg inositol, 69-5,555 µg/kg carnitine, 22.2-972 µg/kg coenzyme Q_{10}, and 22.2-972 µg/kg pycnogenol;

b) 2.31-694 µg/kg vitamin A, 0.023-0.278 µg/kg vitamin D_3, 0.023-0.278 µg/kg vitamin E, 48.6-97.2 µg/kg vitamin B_1, 48.6-97.2 µg/kg vitamin B_2, 312.5-3,190 µg/kg niacin, 0.6-4.17 µg/kg folic acid, 0.14-0.69 µg/kg vitamin B_{12}, 0.444-4.17 µg/kg biotin, 278-833 µg/kg pantothenic acid, 236-903 µg/kg calcium, 97.2-1,390 µg/kg phosphorus, 694-1,390 µg/kg magnesium, 41.7-111 µg/kg zinc, 0.42-3.47 µg/kg selenium, 13.9-45.1 µg/kg manganese, 0.07-2.78 µg/kg chromium, 0.03-1.04 µg/kg molybdenum, 111.1-2,778 µg/kg potassium, 694-3,472 µg/kg citrus fruit peel bioflavanoids, 1,389-4,167 µg/kg arginine, 1,111-2,778 µg/kg cysteine, 1,111-2,778 µg/kg inositol, 1,111-2,778 µg/kg carnitine, 41.7-486 µg/kg coenzyme Q_{10}, and 41.7-486 µg/kg pycnogenol; or

c) 4.6 µg/kg vitamin A, 0.046 µg/kg vitamin D_3, 0.046 µg/kg vitamin E, 97.2 µg/kg vitamin B_1, 97.2 µg/kg vitamin B_2, 625 µg/kg niacin, 1.25 µg/kg folic acid, 0.27 µg/kg vitamin B_{12}, , 0.9 µg/kg biotin, , 555 µg/kg pantothenic acid, 486 µg/kg calcium, 208 µg/kg phosphorus, 555 µg/kg magnesium, 97.2 µg/kg zinc, 0.78 µg/kg selenium, 18.1 µg/kg manganese, 0.14 µg/kg chromium, 0.06 µg/kg molybdenum, 277.8 µg/kg potassium, 1,389 µg/kg citrus fruit peel bioflavanoids, 555 µg/kg arginine, 486 µg/kg cysteine, 486 µg/kg inositol, 486 µg/kg carnitine, 97.2 µg/kg coenzyme Q_{10}, and 97.2 µg/kg pycnogenol.

8. The nutritional composition of any one of claims 1 to 7, wherein the mammal is a human.

9. A pharmaceutical composition comprising the nutritional composition of any one of claims 1 to 8.

10. Use of the nutritional composition of any one of claims 1 to 8 for the preparation of a pharmaceutical composition for facilitating bone healing in a mammal.

11. The use of claim 10, wherein said mammal is a human.

12. The use of claim 10 or 11, wherein said composition is to be administered orally, intravenously or parenterally.